

NON-PUBLIC?: N  
ACCESSION #: 8902020344  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Nine Mile Point Unit 2 PAGE: 1 OF 5

DOCKET NUMBER: 05000410

TITLE: Actuation of Several Engineered Safety Features Caused By a Loss of  
Offsite Power - Equipment Failure  
EVENT DATE: 12/26/88 LER #: 88-062-00 REPORT DATE: 01/24/89

OPERATING MODE: 4 POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Robert G. Smith , Operations Superintendent TELEPHONE: (315) 349-2388

COMPONENT FAILURE DESCRIPTION:  
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:  
REPORTABLE TO NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

#### ABSTRACT:

On December 26, 1988 at 2146 hours, Nine Mile Point Unit 2 (NMP2) experienced actuations of several Engineered Safety Features upon losing all offsite power to the station. At the time of the event the reactor mode switch was in shutdown (Operational Condition 4), the reactor coolant temperature was at approximately 167 degrees Fahrenheit, and the reactor was at ambient pressure.

The immediate cause for this event was an equipment failure specifically, an explosion of a current transformer in an offsite switchyard. The root cause of the transformer explosion is not known; however, the intermediate cause for the transformer explosion is surmised to have been a breakdown in the transformer's dielectric system.

The immediate actions the NMP2 operators took for this event were to monitor plant status, enter the site emergency action procedures, and to restore offsite power.

Other corrective actions include: (1) The equipment manufacturer has been

contacted and is participating in the continuing investigation into the transformer failure; (2) Oil samples will be taken from the other oil filled current transformers in the Scriba switchyard and will be analyzed for dielectric breakdown; (3) Corrective maintenance was performed on the remote shutdown panel transfer switch.

END OF ABSTRACT

TEXT PAGE 2 OF 5

## I. DESCRIPTION OF EVENT

On December 26, 1988 at 2146 hours, Nine Mile Point Unit 2 (NMP2) experienced actuations of several Engineered Safety Features (ESF) upon losing all offsite power to the station. At the time of the event the reactor mode switch was in shutdown (Operational Condition 4), the reactor coolant temperature was at approximately 167 degrees Fahrenheit, and the reactor was at ambient pressure.

The sequence of events for this incident are as follows:

At 2146:16 hours, a current transformer exploded in an offsite switchyard (located in Scriba, New York) disabling one of the two 115000 volt feeder lines (number 6 line) to NMP2. At the time of the event, the number 6 line was the sole source of offsite power for NMP2; the redundant offsite power circuit (number 5 line) was out of service for maintenance. Therefore, NMP2 experienced a complete loss of offsite power. As a result, within the next several seconds the following automatic station responses occurred: load shedding on the emergency busses, startup of the three standby diesel generators, and load sequencing on the emergency busses.

At 2147 hours, during load sequencing for the emergency busses, the Division 1 Service Water Pump 2SWP\*P1A (after automatically starting) tripped off due to the failure of its discharge valve to open (see note 1). However, a redundant service water pump (2SWP\*P1E) automatically started when 2SWP\*P1A tripped off.

Note 1: The failure of the discharge valve to open was traced to an open contact (which should have been closed) in the valve's control circuit. The open contact was one of the transfer switch contacts for the remote shutdown panel. Upon subsequent investigation, NMP2 electricians discovered that a stake-on was bent, in such a way that it prevented transfer switch's movable contacts from closing. Maintenance was performed to correct this problem.!

Between 2146:45 hours and 2148:42 hours the following events occurred:

- \* Isolation of the Secondary Containment (see note 2);
- \* Actuation of the Division I and 2 Reactor Building Emergency Unit

Coolers;

\* Isolation of the Group 8 and 9 Primary Containment (PC) isolation valves.

(Note 2: Upon a secondary containment isolation an automatic start signal is initiated for the standby Gas Treatment System (GTS; however during this event the GTS did not actuate because both GTS divisions were out of service for modifications. The GTS system was not required to be operable at the time of the event.)

At 2153 hours in accordance with Site Emergency Action Procedure EAP-2, an Unusual Event was declared for NMP2.

At approximately 2155 hours the NMP2 operators restored offsite power via the number 5 line.

TEXT PAGE 3 OF 5

At 2158 hours, the NMP2 operators, anticipating a Reactor Protection System (RPS) scram from the Scram Discharge Volume (SDV) high level trip, placed the SDV bypass switches into BYPASS. (Due to the Loss of Offsite Power (LOOP) event power was lost to the control rod scram pilot valves which failed in the scram position as expected; however, the RPS logic was not actuated.)

At 2218 hours, the isolated Group 8 valves were reopened by the NMP2 operators.

At 2240 hours, the NMP2 operators shutdown the Division 3 Diesel Generator.

At 2250 hours, the transformer fire in the Scriba switchyard was extinguished.

At approximately 2300 hours, normal reactor building ventilation was restored.

At 2317 hours, the NMP2 operators shutdown the Division 1 and 2 diesel generators.

At 2350 hours, the Unusual Event was terminated.

Except for those mentioned above, the individual systems and components functioned as designed. There were no other inoperable systems which contributed to this event. No other plant system or component failure resulted from this event.

## II. CAUSE OF EVENT

A root cause analysis was performed using Site Supervisory Procedure S-SUP-1, "Root Cause Evaluation Program". The immediate cause for this event was an

equipment failure; specifically, an explosion of a current transformer in the Scriba switchyard. The root cause of the transformer explosion cannot be determined at this time; however, the intermediate cause for the transformer explosion is surmised to have been a breakdown in the transformer's dielectric system. It is postulated that a high concentration of volatile gases may have formed in the dielectric oil and these gases exploded in the presence of an electric arc in the transformer.

### III. ANALYSIS OF EVENT

This event is reportable in accordance with 10CFR50.73 (a)(2)(iv) because the LOOP event initiated several ESF actuations.

There were no safety consequences to the plant or public as a result of this incident.

TEXT PAGE 4 OF 5

Prior to the LOOP event, the NMP2 operators were using the Reactor Water Cleanup System (RWCU) to remove residual heat from the reactor. During the LOOP the RWCU system was inoperable for approximately 15 minutes; however, no appreciable rise in reactor coolant temperature was observed during this time.

Had a LOOP event occurred at 100% power, the transient that would result would be similar to and bounded by the "Loss of AC (alternating current) Power" event discussed in Final Safety Analysis Report Section 15.2.6.

The duration of this incident from onset of the LOOP to exiting Emergency Action Procedure EAP-2 (termination of the Unusual Event) was approximately 2 hours.

### IV. CORRECTIVE ACTIONS

The immediate corrective actions the NMP2 operators took for this event are discussed in the "Description of Event" section of this report.

Other corrective actions for this event are:

- (1) Oil samples will be taken from the other oil filled current transformers in the Scriba switchyard and will be analyzed for dielectric breakdown.
- (2) The equipment manufacturer has been contacted and is participating in the continuing investigation into the transformer failure. Additional corrective actions will be taken as necessary.
- (3) Corrective maintenance (bending the stake-on out of the way of the

affected contacts) was performed on the remote shutdown panel transfer switch by Work Request 148577. Investigation is continuing into this and other problems experienced with the remote shutdown panel transfer switches. The results of this investigation and any additional corrective actions which may be taken will be discussed in a supplement to LER 88-36.

## V. ADDITIONAL INFORMATION

A. Failed Component Identification:  
Component: Current Transformer type TGX 362  
Component Manufacturer: Balteau S.A.  
Serial Number: 82/53125/16

B. Previous Similar Events - None

TEXT PAGE 5 OF 5

C. Identification of Components Referred to in this LER

COMPONENT IEEE 803 IEEE 805  
EIS FUNCT SYSTEM ID

Current Transformer XCT FK  
Diesel Generator DG EK  
Pump P BI  
Discharge Valve V BI  
Isolation Valves ISV JM  
Switch HS JC  
Bus BU EK  
Unit Coolers CLR VA  
Scram Discharge Volume COL AA  
Primary Containment N/A NH  
Secondary Containment N/A NG  
Reactor Building Ventilation N/A VA  
Service Water System N/A BI  
Reactor Protection System N/A JC  
Primary Containment Isolation System N/A JM  
Reactor Water Cleanup System N/A CE  
Standby Gas Treatment System N/A BH  
Residual Heat Removal System N/A BO

ATTACHMENT 1 TO 8902020344 PAGE 1 OF 1

NM NIAGARA MOHAWK NM 44041  
NIAGARA MOHAWK POWER CORPORATION/300 ERIE BOULEVARD WEST,

SYRACUSE, N.Y.  
13202/TELEPHONE (315) 474-1511

January 24, 1989

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

RE: Docket No. 50-410  
LER 88-62

Gentlemen:

In accordance with 10CFR 50.73, we hereby submit the following Licensee Event Report:

LER 88-62 Is being submitted in accordance with 10CFR50.73 (a)(2)(iv), "Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)."

A notification in accordance with 10CFR50.72 (a)(1)(i) and 10CFR50.72 (b)(2)(ii) was made at 2246 hours on December 26, 1988.

This report was completed in the format designated in NUREG-1022, Supplement 2, dated September 1985.

Very truly yours,

J. L. Willis  
General Superintendent  
Nuclear Generation

JLW/POB/cjm

Attachments

cc: Regional Administrator, Region 1  
Sr. Resident Inspector, W. A. Cook

\*\*\* END OF DOCUMENT \*\*\*

---